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10/564,439

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Naoto Hirosaki

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KANESAKA BERNER AND PARTNERS LLP

1700 DIAGONAL RD

SUITE 310

ALEXANDRIA, VA 22314-2848

EXAMINER

KOSLOW, CAROL M

ART UNIT

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1793

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/564,439

Applicant(s)

HIROSAKI, NAOTO

Examiner

C. Melissa Koslow

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Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 42 and 43 is/are allowed.
- 6) ☒ Claim(s) 1-12, 15-27, 29, 33, 34 and 36-41 is/are rejected.
- 7) ☒ Claim(s) 13, 14, 28, 30-32 and 35 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
- Paper No(s)/Mail Date 1/12/06
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date ____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

The disclosure is objected to because of the following informalities:

Page 13, lines 21-22 teaches the inorganic compound comprises a mixture of one. A single compound cannot be a mixture. The wording in the sentence needs to be clarified. Appropriate correction is required.

Claims 3-6 and 11 are objected to because of the following informalities: In claims 4-6 and 11, the period is missing. In claim 3, the parentheses need to be deleted. Appropriate correction is required.

Claims 1, 16 and 17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 teaches "Eu" which means europium can either be divalent or trivalent. The specification teaches divalent europium. This discrepancy needs to be corrected.

The wording of claims 16 and 17 imply that the nitride or oxynitride having a β -type Si_3N_4 crystal structure having Eu^{2+} solid-dissolved into it crystal contains crystalline or

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amorphous electrically conductive compound is formed with, or at the same time as, the nitride or oxynitride having a β -type Si_3N_4 crystal structure having Eu^{2+} solid-dissolved into it. Pages 26-27 teach the substance can contain at least 50 wt% nitride or oxynitride having a β -type Si_3N_4 crystal structure having Eu^{2+} solid-dissolved into it and less than 50 wt% of at least one secondary phase of a crystalline or amorphous inorganic compound and that this substance can be further mixed with a electrically conductive material, such as the compounds of claim 17. Thus the teachings of claims 16 and 17 are different from that disclosed in the specification. This discrepancy needs to be corrected.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a green fluorescent substance comprising a nitride or oxynitride having a β -type Si_3N_4 crystal structure having Eu^{2+} solid-dissolved into it, does not reasonably provide enablement for a green fluorescent substance comprising a nitride or oxynitride having a β -type Si_3N_4 crystal structure having Eu solid-dissolved into it. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

The claims recite Eu. This encompasses divalent and trivalent europium. However, the specification only teaches divalent. Such a limited disclosure does not support the breadth of the instant claims. The examiner suggests the incorporation of “divalent” or “+2” beside Eu to overcome this rejection.

Claims 15, 18, 21-24, 29, 35, 36 and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The wording of claim 15 is confusing. Based on the teachings in the specification, it is suggested to reword this claim to make it clear that the substance, not the crystal, further contains another crystalline or amorphous compound. Claim 18 is indefinite since it is unclear what compounds compose the raw material. Claims 21-24 are confusing as written. The claims indicate that the raw material is produced by the process of claims 21-24, but there are no process conditions in these claims. Pages 31-32 and the examples teach that a container is filled with the raw material at a filling factor of 40% or less in volume density. It is suggested to reword claim 18 so that it reflects the teachings in the specification. Claim 29 is indefinite since it teaches a mixture of one compound, but a single compound is not a mixture. Finally, claims 35, 36 and 38 should be rewritten so that it states "the fluorescent substance further comprises". This amendment will make it clear that these blue and red and yellow substances are present with the substance of claim 1.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-11, 33, 34 and 36-41 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-3 and 24-26 of U.S. Patent No. 7,253,446. Although the conflicting claims are not identical, they are not patentably distinct from each other because the patented device suggests the phosphor and devices claimed in this application.

Claims 1-11, 33, 34 and 36-41 are directed to an invention not patentably distinct from claims 1-3 and 24-26 of commonly assigned patent 7,253,446. Specifically, the patented device suggests the phosphor and devices claimed in this application.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP Chapter 2300). Commonly assigned U.S. patent 7,253,446, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly

assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-12, 18-20, 25-27, 33, 34 and 36-41 are rejected under 35 U.S.C. 103(a) as being obvious over U.S. patent 7,253,446.

The applied reference has a common inventor with the instant application. This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l)(1) and § 706.02(l)(2).

There is no evidence in this file showing that the invention was owned by, or subject to an obligation of assignment to, the same entity as that of U.S. patent 7,253,446 at the time this

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invention was made, or was subject to a joint research agreement at the time this invention was made.

This reference teaches a β -sialon phosphor having the formula $\text{Eu}_s(\text{Si}_{6-z}\text{Al}_z)_{1-s}\text{O}_z\text{N}_{8-z}$, where s is 0.011-0.019 and $0 < z \leq 4.5$ and teaches that the phosphor is produced by mixing europium oxide, silicon nitride and aluminum oxide, forming the mixture using sieving into an aggregate having a size of 125 microns, placing the aggregates in a BN crucible, heating the aggregates at 2000°C in a nitrogen atmosphere of 1 MPa in a normal pressure sintering or gas pressure sintering method, heating the sintered material at 1700°C and then grinding the material to a size effective for use in a LED based device. The Examiner takes Official Notice that this particle size is 20 microns or less. Thus one of ordinary skill in the art would have found it obvious to grind the material of example 1 to 20 microns or less. The taught phosphor at least overlaps that claimed and the process falls within that claimed. While the reference does not teach the filling factor of the agglomerate in the crucible, one of ordinary skill in the art would have found it obvious to fill the crucible to an extent so as to allow the reaction of raw material to the taught and claimed β -sialon phosphor can occur without lifting the crucible lid during processing. This amount appears to at least overlap the claimed range since the claimed range is that so as to allow the reaction of raw material to claimed β -sialon phosphor can occur. Thus the reference suggests the claimed phosphor, process and devices.

Claims 42 and 43 are allowable over the cited art of record.

Claims 13, 14, 28, 30-32 and 35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 15 and 29 would be allowable if rewritten to overcome the rejections under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

There is no teaching or suggestion in the cited art of record of using the taught phosphor in the device of claim 35 or in an image display device. There is no teaching or suggestion in the cited art of record of including a flux, as claimed in claims 28-32, in the taught process. There is no teaching or suggestion in the cited art of a β -sialon phosphor having the claimed aspect ratio, impurity content or phase composition as defined by claim 15.

EP 155,047 is cited as interest since it is the English equivalent to reference 5 discussed in the specification.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa Koslow whose telephone number is (571) 272-1371. The examiner can normally be reached on Monday-Friday from 8:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo, can be reached at (571) 272-1233.

The fax number for all official communications is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/cmk/
April 11, 2008

/C. Melissa Koslow/
Primary Examiner
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